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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,738	09/27/2001	Timothy J. O'Brien	022438.43865	3856

7590 06/27/2006

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EXAMINER	
REDDIG, PETER J	

ART UNIT	PAPER NUMBER
1642	

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/965,738	O'BRIEN ET AL.	
	Examiner	Art Unit	
	Peter J. Reddig	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-11,35 and 36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-11,35 and 36* is/are rejected.

7)☒ Claim(s) *1 and 5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/14/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *Notice To Comply*.

DETAILED ACTION

1. The amendment filed on April 14, 2006 in response to the Office Action of February 15, 2005 is acknowledged and has been entered.

Claims 1-3, 5-11, 35, and 36 are pending.

Claims 1-3, 5-11, 35, and 36 are currently under consideration.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

Objections Maintained

3. The objections to Claim 1(part b) on page 4 of the action mailed February 15, 2006 is maintained. Applicant argues that amendment of Claim 1 to recite, " . . . Wherein at least one repeat unit comprises SEQ ID NO: 150;" obviates the objection. The argument has been considered but has not been found persuasive because the amendment does not obviate the objection because Claim 1 (part b) is still drawn to non-elected inventions. The argument has been considered but has not been found persuasive and the objection is maintained. It is noted that amendment of Claim 1 to delete reference to sequences other than SEQ ID NO: 150 would obviate this objection.

4. The objection to Claim 5 on page 5 of the action mailed February 15, 2006 is maintained. Applicant argues that since Claim 5 depends from Claim 1, which recites SEQ ID NO: 150, Claim 5 does not refer to non-elected subject matter. The argument has been considered but has not been found persuasive because a review of the published application at paragraph 0016 reveals that all of the variant multiple repeat domains still claimed in Claim 1 are drawn to 156 amino acids. Thus, contrary to applicant's argument, Claim 5 refers to non-elected subject matter. The argument has been considered but has not been found persuasive and the rejection is

maintained. It is noted that amendment of Claim 1 to delete reference to sequences other than SEQ ID NO: 150 would obviate this objection.

5. The objections to the specification for the amendment filed 10/11/2005 under 132(a) because it introduces new matter into the disclosure (see para. 20) is maintained. Applicant argues that the introduction of the phrase "at least in part" in reference to the epitope binding sites is supported as follows:

The amendment is supported by paragraph 38, which discloses, "The epitopes for M11 and OC125 are located in the latter part of the C-enclosure or downstream from the C-enclosure." The amendment is also supported by paragraph 98, which discloses, "From these data, one can reasonably conclude that epitopes are either located at the site of cleavage (residue #76 of SEQ ID NO: 150, Figure 5, panel C) and are destroyed by Asp-N or are downstream from this site and also destroyed by cleavage." Applicant further argues that, "These passages of the specification make clear that the epitopes can include sequences outside of residues K59-79 of SEQ ID NO: 150."

This argument has been considered, but is not found persuasive.

Although applicant argues that the specification teaches that epitopes for M11 and OC125 are located in the latter part of the C-enclosure or downstream from the C-enclosure and argues that the specification teaches that from the data disclosed that one could reasonably conclude that epitopes are either located at the site of cleavage or are destroyed by Asp-N or downstream from this site and also destroyed by cleavage, this does not provide support for the newly added, broadly claimed limitations. Nothing in the cited support, or the specification as originally filed supports the newly added broadly claimed genus which now reads on epitope

binding sites anywhere in the molecule as long as one of the sites is located in the C-enclosure and includes at least one of the residues 59-79 of SEQ ID NO: 150.

Applicant is required to cancel the new matter in the reply to this Office Action.

New Objections to the Specification

6. The specification is further objected to on page 19, lines 27 and 28, for improper disclosure of amino acid sequences without a respective sequence identifier, i.e. a SEQ ID NO. Hence, the disclosure fails to comply with the requirements of 37 CFR 1.821 through 1.825. In the absence of a sequence identifier for each sequence, Applicant must provide a computer readable form (CRF) copy of the sequence listing, an initial or substitute paper copy of the sequence listing, as well as any amendment directing its entry into the specification, and a statement that the content of the paper and computer readable copies are the same and, where applicable, include no new matter, as required by matter, as required by 37 CFR 1.821(e-f) or 1.825(b) or 1.825(d). *Failure to supply the appropriate sequences identification numbers in response to this action will be considered non-responsive.*

Rejections Maintained

7. Claim 6 remains rejected under 35 USC 112, first paragraph for the reasons previously set forth in the paper mailed February 15, 2006 p. 6-7.

The applicant argues, that as discussed above in the objection to "at least in part" in the specification, that specification does provide support for the CA125 molecule, wherein the epitope binding sites are located at least in part in the C-enclosure.

This argument has been considered, but is not found persuasive for the reasons stated above in the maintained objection to the specification.

Applicant is required to cancel the new matter in the reply to this Office Action.

New Rejections

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-3, 5-11, 35, and 36 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-3, 5-11, 35, and 36, as written, do not sufficiently distinguish over CA125 polypeptides as they exist naturally because the claims do not particularly point out any non-naturally occurring differences between the claimed products and the naturally occurring products. In the absence of the hand of man, the naturally occurring products are considered non-statutory subject matter. *See Diamond v. Chakrabarty*, 447 U.S. 303, 206 USPQ 193 (1980). In order to obviate the instant rejection, the Examiner suggests that the claims should be amended to indicate the hand of the inventor, e.g., by insertion of "isolated" or "purified" provided the support fro such an amendment can be identified in the specification as originally filed. See MPEP 2105.

Claim Rejections - 35 USC § 112

9. Claim 1-3, 5-11, 35, and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-3, 5-11, 35, and 36 are indefinite because Claims 1-3, 5-11, 35, and 36 are drawn to a CA125 molecule comprising genomic exons that comprise amino acids. The claims are indefinite because that are confusing in that genomic exons comprise nucleic acid residues and not amino acid residues and the metes and bounds of claim protection sought cannot be determined.

10. Claims 1-3, 5-11, 35, and 36 are rejected under 35 USC 112, first paragraph, as the specification does not contain a written description of the claimed invention. The limitation of "wherein at least one repeat unit comprises SEQ ID NO: 150"has no clear support in the specification and the claims as originally filed. Examiner's review of the specification did not reveal support for the newly added limitation. Applicant points to support for amended Claim 1 in the originally filed Claim 1 and page 9, lines 16-18, the suggested support has been considered but has not been found persuasive because a review of originally filed Claim 1 revealed no recitation of SEQ ID NO: 150 and a review of page 9, lines 16-18 reveals support only for "panel C shows a typical repeat sequence corresponding to SEQ ID NO: 150 with each defined by arrows." Further, although a review of the published application reveals support for "CA125 antigen ..... comprising at least one repeat unit of the CA125 repeat domain including epitope binding sites selected from the group consisting of amino acid sequences set forth in SEQ ID NO:..... 150" at paragraph 29 of the published application, this support is drawn only to the epitope binding sites of SEQ ID NO: 150 and not to the repeat domain itself. Thus neither the cited support nor a review of the specification as originally filed reveals support for the newly added limitation of "at least one repeat unit comprises SEQ ID NO: 150".

The subject matter claimed in claims 1-3, 5-11, 35, and 36 broadens the scope of the invention as originally disclosed in the specification.

11. Claims 35 and 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Factors to be considered in determining whether undue experimentation is required are summarized in Ex parte Forman, 230 USPQ 546 (BPAI 1986). They include the nature of the invention, the state of the prior art, the relative skill of those in the art, the amount of direction or guidance disclosed in the specification, the presence or absence of working examples, the predictability or unpredictability of the art, the breadth of the claims, and the quantity of experimentation which would be required in order to practice the invention as claimed.
The claims are drawn to the CA125 molecule according to Claim 5, wherein the epitope binding sites include an amino acid residue #76 and # 68 of SEQ ID NO: 150.

The specification teaches that a polypeptide containing amino acid residue #76 (amino acids 1-76) exhibited no binding to a CA125 antibody (p. 21. 4th para.). The specification then teaches that (p. 21, 4th para and p. 22, 1st para.), "From these data, one can reasonably conclude that epitopes are either located at the site of cleavage and are destroyed by Asp-N or are downstream from this site and also destroyed by cleavage." Further the specification teaches that a peptide containing amino acid residue #68, (amino acids #68-154), also exhibits no binding to the CA125 antibody (p. 22, 1st para.). The specification then speculates that " . . . it

seems likely that epitope binding resides in the cysteine loop region containing a possible disulfide bridge (amino acids # 59-79)." Furthermore, the specification teaches that final confirmation of the epitopes is still being examined (p. 22, 1st para.). These teachings are exemplified in Figure 5.

One cannot extrapolate the teachings of the specification to the enablement of the claims because the specification clearly reveals that at the time the invention was made, the specific residue constituents of the epitopes were unknown. Given that the specific residues of the epitopes were unknown, one could not predict, with a reasonable expectation of success that (a) the cited residues are included in the epitope binding site (b) the cited residues are not included in the epitope binding site. Thus one would not know how to make or use the claimed invention.

12. Claims 35 and 36 are rejected under 35 USC 112, first paragraph, as the specification does not contain a written description of the claimed invention. The limitation of "wherein the epitope binding sites include amino acid residue #76 of SEQ ID NO: 150 (Claim 35) and amino acid residue #68 of SEQ ID NO: 150 (Claim 36) has no clear support in the specification and the claims as originally filed. Examiner's review of the specification did not reveal support for the newly added limitation.

The applicant points to support for Claim 35 at p. 21, line 25 and p. 22, line 6 and for Claim 36 at p.21, line 25 and p22, line 6. The suggested support has been considered but has not been found persuasive because the paragraph in which support for these claims is indicated to be found states that one could reasonably conclude that epitopes are either located at the site of cleavage or are downstream from this site and also destroyed by cleavage. However, nothing in

the specification supports the newly added limitations that the epitope binding sites include these residues and in the absence of the either/or statement, the newly added claim limitation is new matter.

The subject matter claimed in claims 35 and 36 broadens the scope of the invention as originally disclosed in the specification.

13. Claims 35 and 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims are drawn to the CA125 molecule wherein the epitope binding sites include amino acid residue #76 of SEQ ID NO: 150 (Claim 35) and amino acid residue #68 of SEQ ID NO: 150 (Claim 36)

Although drawn to DNA arts, the findings in University of California v. Eli Lilly and Co., 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997) and Enzo Biochem, Inc. V. Gen-Probe Inc. are relevant to the instant claims. The Federal Circuit addressed the application of the written description requirement to DNA-related inventions in University of California v. Eli Lilly and Co., 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997). The court stated that "[a] written description of an invention involving a chemical genus, like a description of a chemical species, requires a precise definition, such as by structure, formula, [or] chemical name,' of the claimed subject matter sufficient to distinguish it from other materials." Id. At 1567, 43 USPQ2d at 1405. The court also stated that

> a generic statement such as "vertebrate insulin cDNA" or "mammalian insulin cDNA" without more, is not an adequate written description of the genus because it does not distinguish the genus from others, except by function. It does not specifically define any of the genes that fall within its definition. It does not define any structural features commonly possessed by members of the genus that distinguish them from others. One skilled in the art therefore cannot, as one can do with a fully described genus, visualize or recognize the identity of the members of the genus. A definition by function, as we have previously indicated, does not suffice to define the genus because it is only an indication of what the gene does, rather than what it is.

Id. At 1568, 43 USPQ2d at 1406. The court concluded that "naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not a description of that material." Id.

Finally, the court addressed the manner by which a genus of cDNAs might be described. "A description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to the members of the genus, which features constitute a substantial portion of the genus." Id.

The Federal Circuit has recently clarified that a DNA molecule can be adequately described without disclosing its complete structure. See Enzo Biochem, Inc. V. Gen-Probe Inc., 296 F.3d 1316, 63 USPQ2d 1609 (Fed. Cir. 2002). The Enzo court adopted the standard that "the written description requirement can be met by 'show[ing] that an invention is complete by disclosure of sufficiently detailed, relevant identifying characteristics ....i.e., complete or partial structure, other physical and/or chemical properties, functional characteristics when coupled with a known or disclosed correlation between function and structure, or some combination of such characteristics. " Id. At 1324, 63 USPQ2d at 1613 (emphasis omitted, bracketed material in original).

The inventions at issue in Lilly and Enzo were DNA constructs per se, the holdings of those cases are also applicable to claims such as those at issue here. Thus, the instant specification may provide an adequate written description of the epitope binding sites, per Lilly by structurally describing a representative number of epitope binding sites or by describing "structural features common to the members of the genus, which features constitute a substantial portion of the genus." Alternatively, per Enzo, the specification can show that the claimed invention is complete "by disclosure of sufficiently detailed, relevant identifying characteristics, functional characteristics when coupled with a known or disclosed correlation between function and structure, or some combination of such characteristics."

In this case, the specification does not describe the epitope binding sites of Claims 35 and 36 in a manner that satisfies either the Lilly or Enzo standards. The specification does not provide the complete structure of the epitope binding sites, nor does the specification provide any partial structure of such epitope binding sites, nor any physical or chemical characteristics of the epitope binding sites nor any functional characteristics coupled with a known or disclosed correlation between structure and function. The specification also fails to describe the epitope binding sites the test set out in Lilly. The specification teaches that one, " . . . can reasonably conclude that epitopes are either located at the site of cleavage and are destroyed by Asp-N or are downstream from this site and also destroyed by cleavage." (p. 22, line 1) Therefore, it necessarily fails to describe a "representative number" of such species. In addition, the specification also does not describe "structural features common to the members of the genus, which features constitute a substantial portion of the genus."

Thus, the specification does not provide an adequate written description of the epitope binding sites that is required to practice the claimed invention

14. All other rejections and objections recited in the previous office action are hereby withdrawn.

15. No claims are allowed.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J. Reddig whose telephone number is (571) 272-9031. The examiner can normally be reached on M-F 8:30 a.m.-5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Siew can be reached on (571) 272-0787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Peter J. Reddig, Ph.D.
Examiner
Art Unit 1642

SUSAN UNGAR, PH.D
PRIMARY EXAMINER

PJR

Sequence Count Sheet	Application/Control No.	Applicant(s)	
	09/965,738	Timothy J. O'Brien	
	Examiner	Art Unit	
	Peter J. Reddig	1642	

DATE OF COUNT

Mark only one space below

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